

## AGENCY USE ONLY

PERMIT NO.:

MTG010148

Date Rec'd.:

11/4/17

Amount Rec'd.:

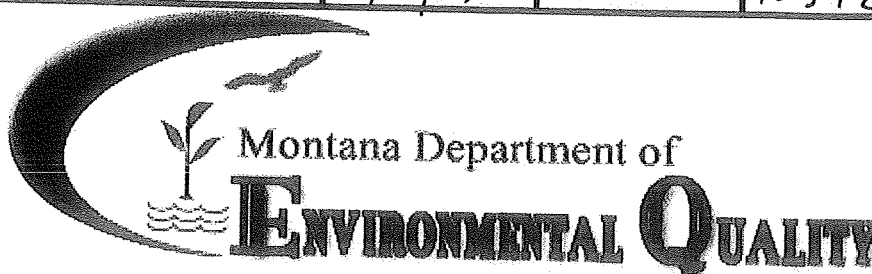
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Check No.:

10592

Rec'd By:

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## WATER PROTECTION BUREAU

FORM  
NOI

# **Notice of Intent (NOI) for Montana Pollution Discharge Elimination System Application for New and Existing Concentrated Animal Feeding Operations**

The Application form is to be completed by the owner or operator of a Concentrated Animal Feeding Operation (CAFO) or Aquatic Animal Production Facility. Please read the attached instructions before completing this form. You must print or type legibly; forms that are not legible or are not complete will be returned. You must maintain a copy of the completed application form for your records.

## **Section A - Application Status (Check one):**

- ☐ New  
☐ Resubmitted  
☒ Renewal  
☐ Modification
- No prior application submitted for this site.  
 Permit Number: MTG \_\_\_\_\_  
 Permit Number: MTG 0 1 0 1 4 8  
 Permit Number: MTG \_\_\_\_\_

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## **Section B - Facility or Site Information (See instruction sheet.):**

Site Name Vogel Feeders, Inc.Site Location Road 12 SouthNearest City or Town BallantineCounty YellowstoneLatitude 45°55.692' NLongitude 108°11.867' WDate Facility began operation? 1973Is this facility or site located on Indian Lands? ☐ Yes ☒ No

## **Section C - Applicant (Owner/Operator) Information:**

Owner or Operator Name Dan Vogel- President/OwnerMailing Address 2088 South 13th RoadCity, State, and Zip Code Ballantine, Montana 59006Phone Number (406) 967-2966Is the person listed above the owner? ☒ Yes ☐ NoStatus of Applicant (Check one) ☐ Federal ☐ State ☒ Private ☐ Public ☐ Other (specify) \_\_\_\_\_

**Section D - Existing or Pending Permits, Certifications, or Approvals:** ☐ None☒ MPDES MTG010148☐ RCRA \_\_\_\_\_☐ PSD (Air Emissions) \_\_\_\_\_☐ Other \_\_\_\_\_☐ 404 Permit (dredge & fill) \_\_\_\_\_☐ Other \_\_\_\_\_**Section E - Standard Industrial Classification (SIC) Codes:**

Provide at least one SIC code which best reflects the activity of project described in Section H.

Code	A. Primary	Code	B. Second
1	0211 Beef Cattle Feedlot	2	
Code	C. Third	Code	D. Fourth
3		3	

**Section F - Facility or Site Contact Person/Position:**Name and Title, or Position Title Dan VogelMailing Address 2088 South 13th RoadCity, State, and Zip Code Ballantine, Montana 59006Phone Number (406) 967-2966**Section G - Receiving Surface Waters(s):**

Outfall/Discharge Locations: For each outfall, List latitude and longitude to the nearest second and the name of the receiving waters

Outfall Number	Latitude	Longitude	Receiving Surface Waters
001	45° 55.815' N	108° 11.881' W	Huntley Project Canal
002	45° 56.605' N	108° 8.331' W	Arrow Creek
003			
004			
005			

Map: Attach a topographic map extending one mile beyond the property boundaries or the site activity identified in Section B depicting the facility or activity boundaries, major drainage patterns, and the receiving surface waters, stated above. Also identify the specific location of the production area, and land application area(s).

Is the receiving water on the 303(d) list for nutrients (nitrogen and/or phosphorus)

☐ Yes ☒ No

## Section H – Concentration Animal Feeding Operation Characteristics

### Waste Production, Storage and Disposal

Animal type	Number in Open Confinement	Number Housed Under Roof
<input type="checkbox"/> Mature Dairy Cows		
<input type="checkbox"/> Dairy Heifers		
<input type="checkbox"/> Veal Calves		
<input checked="" type="checkbox"/> Cattle (not dairy or veal)	16,000 (7,500 -1 time cap)	0
<input type="checkbox"/> Swine (55 lbs or over)		
<input type="checkbox"/> Swine (55 lbs or under)		
<input type="checkbox"/> Horses		
<input type="checkbox"/> Sheep or Lambs		
<input type="checkbox"/> Turkeys		
<input type="checkbox"/> Chickens (broilers)		
<input type="checkbox"/> Chickens (layers)		
<input type="checkbox"/> Ducks		
<input type="checkbox"/> Other (Specify: _____)		
<input type="checkbox"/> Other (Specify: _____)		
<input type="checkbox"/> Other (Specify: _____)		

#### Manure, Litter and/or Wastewater Production and Use.

How much manure, litter, and process wastewater is generated annually by the facility?

Solid (tons): 6,500 Liquid/Slurry (gallons): 4,000,000

If land applied, how many acres of land under control of the permit applicant are available to apply the manure, litter, or process wastewater generated from the facility? (Note: Do not include setback distances in available acreage)  
1,320 Acres

How much manure, litter, and process wastewater is transferred to other persons per year? (estimated) Solid (tons): 0 Liquid/Slurry (gallons): 0

Were the containment structures built after February 2006?

- ☐ Do the waste containment structures have 10 feet of separation between the pond bottom and any bedrock formations?
- ☐ Do the waste containment structures have 4 feet of separation from the pond bottom and any ground water?
- ☐ Were any of the waste containment structures built within 500 feet of any existing well?

Type of Containment/Storage	Total Capacity	Units (gallons or tons)	Days of Storage
<input type="checkbox"/> Anaerobic Lagoon			
<input type="checkbox"/> Storage Pond #1	5,209,500	gallons	
<input type="checkbox"/> Storage Pond #2	1,890,000	gallons	
<input type="checkbox"/> Storage Pond #3	718,080	gallons	
<input type="checkbox"/> Storage Pond #4			
<input type="checkbox"/> Storage Pond #5			
<input type="checkbox"/> Above Ground Storage Tank			
<input type="checkbox"/> Below Ground Storage Tank #1			
<input type="checkbox"/> Below Ground Storage Tank #2			
<input type="checkbox"/> Underfloor Pits			
<input type="checkbox"/> Roofed Storage Shed			
<input type="checkbox"/> Concrete Pad			
<input type="checkbox"/> Impervious Soil Pad			
<input type="checkbox"/> Other (Specify: _____)			
<input type="checkbox"/> Other (Specify: _____)			

### Physical Data for CAFO

#### Nutrient Management Plan

All Concentrated Animal Feeding Operations seeking permit coverage after July 31, 2007 are required to complete and implement a Nutrient Management (NMP). The NMP must be submitted to the Department using the form provided by the Department (Form NMP). Check the box below that applies and provide the required information. The NMP must be developed in accordance with ARM 17.30.1334 and implemented upon the effective date of permit coverage. (Check One)

- ☒ Does the facility have an NMP?  
 Date NMP was developed: \_\_\_\_\_  
 Date NMP was last modified: October 2013
- ☐ NMP has not been prepared; provide detailed explanation below

### Section I -- Supplemental Information



## Section J - CERTIFICATION

### Permittee Information:

This Form NMP must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

### All Permittees Must Complete the Following Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

A. Name (Type or Print)

Daniel J Vogel

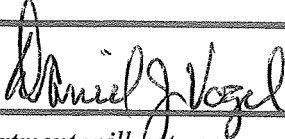
B. Title (Type or Print)

President

C. Phone No.

(406) 967-2966

D. Signature



E. Date Signed

10-29-2013

*The Department will not process this form until all of the requested information is supplied, and the appropriate fees are paid. Return this form (NOI) and the applicable fee to:*

Department of Environmental Quality  
Water Protection Bureau  
PO Box 200901  
Helena, MT 59620-0901  
(406) 444-3080

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DEQ/WPB  
PERMITTING & COMPLIANCE DIV.

# Form NOI – Application for New and Existing Concentrated Animal Feeding Operations and Aquatic Animal Production Facilities

**Important:** Do not use this form to transfer permit coverage to a new owner or operator, you must use Form PTN. You must provide the information requested for this application to be complete. Responses must be self-explanatory and must not refer exclusively to attached maps, plans or documents. The appropriate fees must accompany this Form NOI. Mail this to the DEQ address stated on the form. You must maintain a copy of the completed form for your records. CAFO General Permit and the Fish Farm General Permit documents and related forms are available at (406) 444-3080 or on the DEQ website at: <http://www.deq.mt.gov>.

Please type or print legibly; applications that are not legible or are not complete will be rejected.

## SPECIFIC ITEM INSTRUCTIONS

### ***Section A – Application Status***

Check the box that applies and provide the requested information. If Form NOI has not been previously submitted for this site, check the first box (New). DEQ will assign a permit number when the form is submitted. The permit number is a 9-digit code beginning with MTG010. If you submitted a Form NOI and DEQ deemed the application deficient or incomplete, check the second box (Resubmitted); If you were notified by DEQ that the permit coverage expired or will expire and you are now submitting an NOI to continue coverage check the third box (Renewal); if there is a change in the facility information (Section H or Section I), check the last box (Modification). If a NOI has been submitted and deemed deficient then the permit number will appear in the deficiency letter. If the site is covered under the *General Permit for Concentrated Animal Feeding Operations* or the *General Permit for Fish farms*, the number is given on the Authorization letter sent to you by DEQ. The permit number must be included on any correspondence with DEQ regarding this site.

### ***Section B – Facility Information:***

Identify the legal name of the facility that is subject to permit coverage. The facility is the land or property where the facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity. Give the address or location of this facility and the geographical information. The location may be the physical mailing address or description of how the facility may be accessed. (PO Boxes are not acceptable.) Latitude and longitude must be accurate to the nearest second. Sources include GPS, a USGS topographic map, and/or "Topofinder" from <http://nris.mt.gov/interactive.asp>.

### ***Section C – Applicant (Owner/Operator) Information:***

Give the name, as it is legally referred to, of the person, business, public organization, or other entity that owns, operates, controls or supervises the facility described in Section B of this Form. The operator is the legal entity which controls the facility operation. The permit will be issued to the entity identified in this section (Section C). The owner or operator assumes all liability for discharges of the facility and compliance with the permit. If the owner or operator is other than a person or government entity it must be registered with the Montana Secretary of State's office.

### ***Section D – Existing or Pending Permits, Certification, or Approvals:***

List, in descending order of significance, the four digit standard industrial codes that best describe the activities at this facility. Also, provide a brief description in the space provided. A complete list of SIC Codes (and conversion form the newer North American Industry Classification System (NAICS)) can be obtained from the Internet at <http://www.census.gov/epcd/www/naics.html> or in paper from the document entitled "Standard Industrial Classification Manual", Office Management and Budget, 1987. SIC Code listings may also be found at <http://www.osha.gov/pls/imis/sicsearch.html>. At least one SIC code must be provided. See attached table for common SIC codes.

### ***Section F – Facility Contact Person/Position:***

Give the name, title, and work phone number of a person who is thoroughly familiar with the operation of the facility and the facts reported in this form, and who can be contacted by DEQ for additional information. Those facilities with periodic changes in the contact person may provide the contact person's position instead of a person's name.

### ***Section G – Receiving Surface Water(s):***

An outfall location is considered to be a discrete channel, conveyance, structure, or flow path from which the discharge leaves the boundary of the facility and/or enters surface water. “Surface waters” is defined in ARM 17.30.1102(32) as any waters on the earth’s surface including, but not limited to, streams, lakes, ponds, reservoir, or other surface water including ephemeral and intermittent drainage ways and irrigation systems. Water bodies used solely for treating, transporting, or impounding pollutants shall not be considered surface water. Provide the following information in the table on the application form:

1. Assign a number to each outfall starting with 001. If the outfall is not well defined, assign the outfall number to the drainage area. For existing permittees, ensure outfall numbers used are consistent with those identified in the past for the same outfall.
2. Latitude/longitude can be derived from USGS 7.5 minute topographic map and/or “Topofinder” at <http://nris.mt.gov/interactive.html> . Latitude and longitude must be accurate to the nearest second.
3. Give the name of the surface waters that receive the discharge. If the discharge reports to a municipal storm sewer, please indicate so.
4. Please attach a USGS topographic map(s) indicating the boundary of your facility, major drainage patterns, and the receiving surface water(s).

The facility must check the CWAIC data base at <http://cwaic.mt.gov/> to determine if the receiving water is impaired for nutrient (nitrate and/or phosphorus).

### ***Section H – Concentrate Animal Feeding Operation Characteristics:***

#### **Waste Production, Storage and Disposal:**

Report the maximum number of each type of animal confined at any one time and the type of confinement structure used for each (e.g. open feedlot, under roof.)

#### **Manure, Litter, and/or Wastewater Production and Use:**

To *transfer waste* means to give away or sell waste to another person for disposal on land owned or controlled by someone other than the permit applicant.

The term “*storage pond*,” includes, but is not limited to ponds, aerobic lagoons, evaporation ponds, manure holding cells, collection basins, settling basins, bermed or diked areas used for impounding waste, and temporary or seasonal waste holding ponds.

“*Production area*” means that part of an Animal Feeding Operation (AFO) that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The *animal confinement area* includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milk rooms, milking centers, cow yards, barnyards, medication pens, walkers, animal walkways, and stables. The *manure storage area* includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storage, liquid impoundments, static piles, and composting piles. The *raw materials storage area* includes but is not limited to feed silos, silage bunkers, and bedding materials. The *waste containment area* includes but not limited to settling basins, and areas within berms and diversion which separate uncontaminated storm water. Also include in the definition of production area is any egg washing or egg processing facility, and any area used in storage, handling, treatment, or disposal of mortalities.

“*Land application area*” means land under control of AFO owner or operator, whether it is owned, rented, or leased, to which manure, litter or process wastewater from the production area is or may be applied.

### ***Section I - Supplemental Information:***

Use the space provided to expand upon any information requested in the application or information you wish to bring to the attention of the reviewer. Attach additional sheets, if necessary. For applicants requesting a modification to an existing authorization or site-specific Nutrient Management Plan (aka Form NMP), provide and explanation of the requested modification.

## Common Standard Industrial Classification (SIC) Codes

Division	SIC	Industrial Activity Represented
Agriculture, Forestry and Fishing	211	Beef Cattle Feedlots
	212	Beef Cattle, Except Feedlots
	213	Hogs
	214	Sheep and Goats
	241	Dairy Farms
	251	Broiler, Fryer and Roaster Chickens
	252	Chicken Eggs
	253	Turkeys and Turkey Eggs
	254	Poultry hatcheries
	259	Poultry and Eggs, not elsewhere classified (Ducks)
	272	Horses and other Equines
	921	Fish Hatcheries and Preserves
Mining	1021	Copper Ores
	1031	Lead and Zinc
	1044	Silver Ores
	1041	Gold Ores
	1221	Bituminous Coal and Lignite Surface Mining
	1311	Crud Petroleum and Natural Gas
	1442	Construction Sand and Gravel
Construction	1521	General Contractor - Single Family Houses
	1522	General Contractor - Residential Bldgs. Other Than Single Family
	1542	General Contractor - Nonresidential Buildings, Other than Industrial Buildings and Warehouses
	1611	Highway and Street Construction, Except Elevated Highways
	1622	Bridge, Tunnel, and Elevated Highway construction
	1623	Water, Sewer, Pipeline, communications & Power Line Construction
	1629	Heavy construction, Not Elsewhere Classified
	1794	Excavation Work
	7349	Building Cleaning and Maintenance Services, Not Elsewhere
Manufacturing	2011	Meat Packing Plants
	2063	Beet Sugar
	2421	Sawmills and Planing Mills, General
	2611	Pulp Mills
	2911	Petroleum Refining
	3241	Cement, Hydraulic
Transportation, Communications, Electric, Gas and Sanitary Services	4911	Electric Services
	4941	Water Supply
	4952	Sewerage Systems
	4953	Refuse Systems
Wholesale Trade	5093	Scrap and Waste Materials
	5154	Livestock
	5171	Petroleum Bulk Stations and Terminals
Retail Trade	5541	Gasoline Service Station
	5984	Liquefied Petroleum Gas (Bottled Gas) Dealers
Services	7011	Hotels and Motels
	7033	Recreational Vehicle Parks and Campsites
	7542	Carwashes
Public Administration	9224	Fire Protection
	9711	National Security

The image is an aerial photograph of a coastal region, overlaid with a grid. The grid cells are labeled with alphanumeric codes. The labels are as follows:

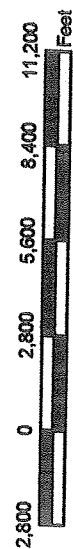
Row	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10
1	T2NR28ES00	T2NR28ES01	T2NR28ES02	T2NR28ES03	T2NR28ES04	T2NR28ES05	T2NR28ES06	T2NR28ES07	T2NR28ES08	T2NR28ES09
2	T2NR28ES10	T2NR28ES11	T2NR28ES12	T2NR28ES13	T2NR28ES14	T2NR28ES15	T2NR28ES16	T2NR28ES17	T2NR28ES18	T2NR28ES19
3	T2NR28ES20	T2NR28ES21	T2NR28ES22	T2NR28ES23	T2NR28ES24	T2NR28ES25	T2NR28ES26	T2NR28ES27	T2NR28ES28	T2NR28ES29
4	T2NR28ES30	T2NR28ES31	T2NR28ES32	T2NR28ES33	T2NR28ES34	T2NR28ES35	T2NR28ES36	T2NR28ES37	T2NR28ES38	T2NR28ES39
5	T2NR29ES00	T2NR29ES01	T2NR29ES02	T2NR29ES03	T2NR29ES04	T2NR29ES05	T2NR29ES06	T2NR29ES07	T2NR29ES08	T2NR29ES09
6	T2NR29ES10	T2NR29ES11	T2NR29ES12	T2NR29ES13	T2NR29ES14	T2NR29ES15	T2NR29ES16	T2NR29ES17	T2NR29ES18	T2NR29ES19
7	T2NR29ES20	T2NR29ES21	T2NR29ES22	T2NR29ES23	T2NR29ES24	T2NR29ES25	T2NR29ES26	T2NR29ES27	T2NR29ES28	T2NR29ES29
8	T2NR29ES30	T2NR29ES31	T2NR29ES32	T2NR29ES33	T2NR29ES34	T2NR29ES35	T2NR29ES36	T2NR29ES37	T2NR29ES38	T2NR29ES39

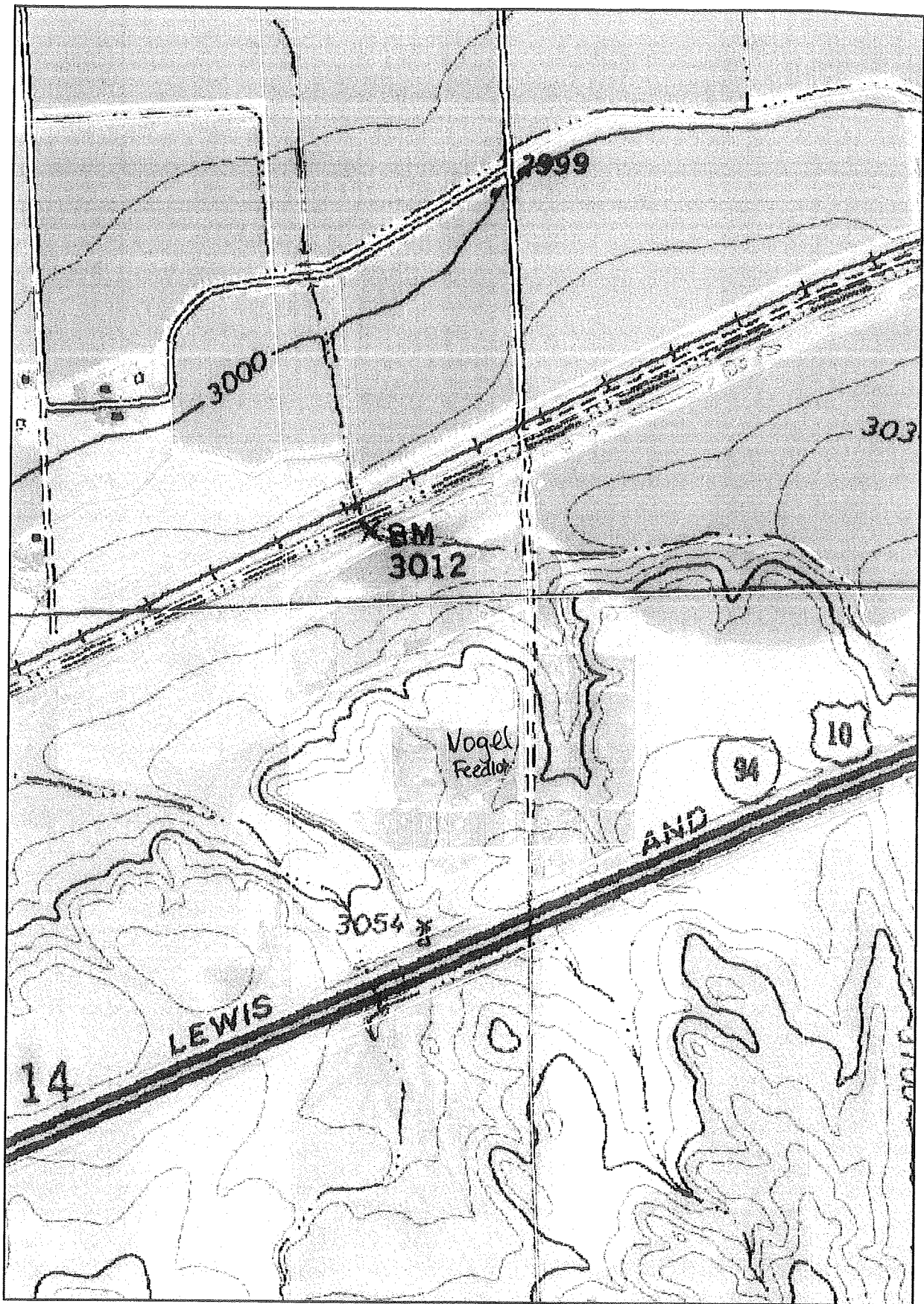
citytown a mt11

roads100k | m111

VLCC\_Owned\_Operated

pliss\_a\_mt111

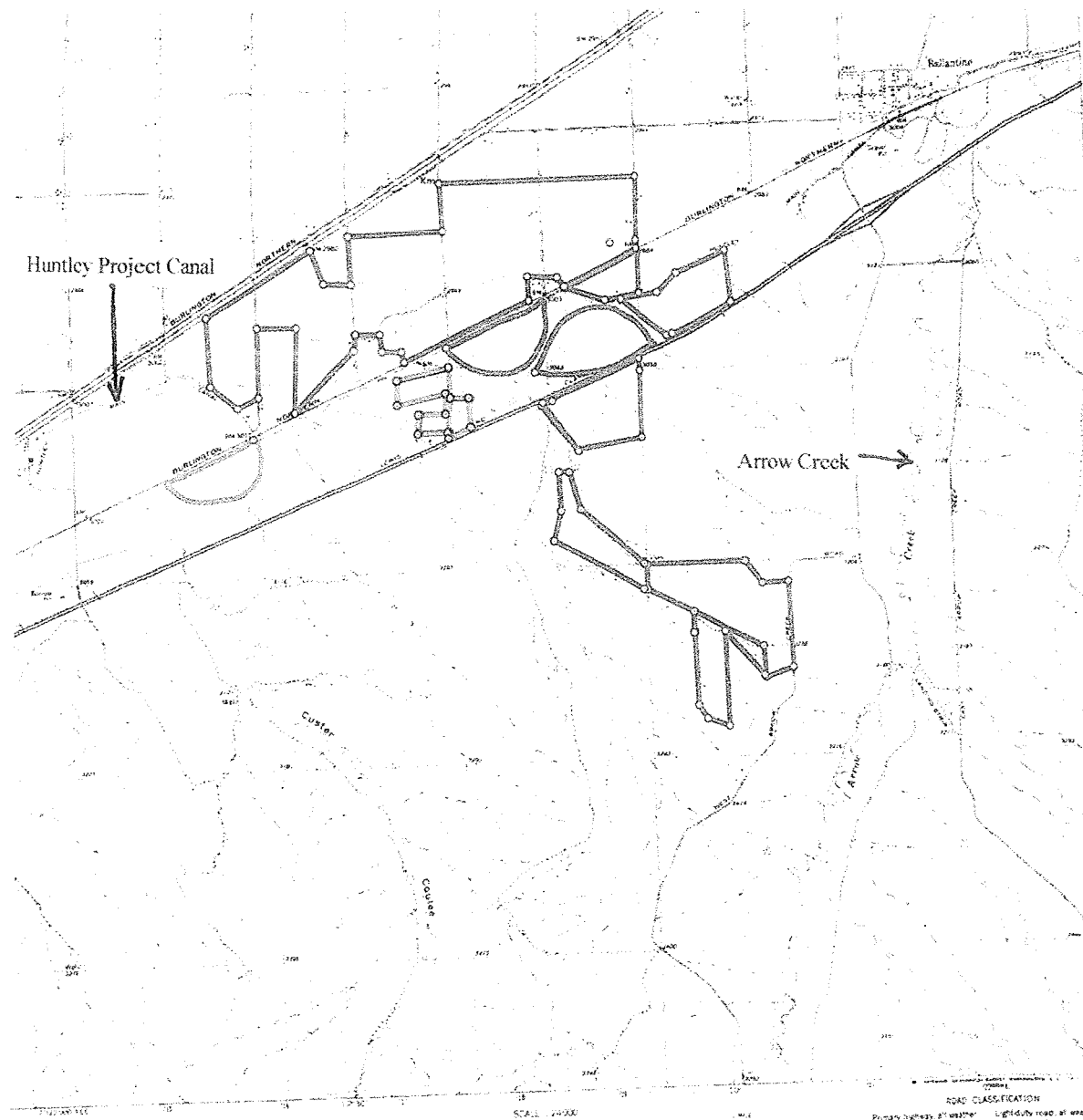




0 0.0475 0.095 0.19 0.285 0.38 Miles







Edited and published by the Geological Survey  
of the Department of the Interior, program  
development of the Missouri River Basin  
in 1955 and 1956.  
The topographic map was compiled from  
aerial photos (1955-1956) and ground  
survey data (1957) North American datum  
1983 based on Montana coordinate system  
1983.  
The survey was conducted by the  
U.S. Geological Survey, Montana District Office,  
Helena, Montana.

U.S. Geological Survey, Montana District Office,  
Helena, Montana.

THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80205, OR WASHINGTON, D.C. 20501  
A COLOR DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.



ROAD CLASSIFICATION  
Primary highway, all weather  
Secondary highway, all weather  
Unimproved road, fair or  
weather  
Light duty road, all weather  
Unimproved surface  
Unimproved road, fair or  
weather  
U.S. Route

WORDEN, MC  
NASSCO 6-110507  
1967  
495 4575 NW-1581

## AGENCY USE ONLY

PERMIT NO.:

MTG 01040

Date Rec'd.:

11/4/17

Amount Rec'd.:

Check No.:

Rec'd By:



# Montana Department of ENVIRONMENTAL QUALITY

## WATER PROTECTION BUREAU

 FORM  
NMP

## Nutrient Management Plan

**READ THIS BEFORE COMPLETING FORM:** Before completing this form (Form NMP), Concentrated Animal Feeding Operation (CAFO) operators need to read the General Permit, particularly Part IV.A. CAFO operators also need to read the "Instructions For filling out Form NMP," found at the back of this form. Form NMP is intended to help CAFO operators develop a site-specific Nutrient Management Plan, in compliance with Part IV.A of the General Permit and all applicable State rules and statutes. Your Nutrient Management Plan must be maintained at the site as required in Part III of the General Permit. Sections B and C on your Form NMP must state the information exactly the same way as it was stated on the most recently submitted version of your NOI-CAFO. Attach additional pages as necessary, indicating the corresponding section number on this NMP form. The 2013 General Permit, current fee schedule, and related forms are available from the Water Protection Bureau at (406) 444-3080 or <http://www.deq.mt.gov/wqinfo/MPDES/CAFO.asp>

### Section A – NMP Status:

- ☐ New No prior NMP submitted for this site.
- ☐ Resubmitted Previous NMP found incomplete.
- ☒ Modification Change or update to existing NMP.
- ☐ New 2013 New 2013 version of NMP.

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DEQ/WPB  
PERMITTING & COMPLIANCE DIV.

### Section B – Facility Information:

Facility Name Vogel Feeders, Inc.Facility Location Road 12 SouthNearest City of Town Ballantine County Yellowstone

### Section C – Applicant (Owner/Operator Information):

Owner or Operator Name Dan Vogel - President/OwnerMailing Address 2088 South 13th RoadCity, State, and Zip code Ballantine, Montana 59006Facility Phone Number (406) 967-2966Email dnmvogel@yahoo.com



**Section D – NMP Minimum Elements:**

1. Livestock Statistics		
Animal Type and number of animals	# of Days on Site (per year)	Annual Manure Production (tons, cu. yds. or gal)
1. Feeder Cattle	90-220	6,500 tons dry
2.		
3.		
4.		
5.		
6.		
7.		
8.		

**Method used for estimating annual manure production:**

Historical averages based on the manure production at the facility.

**2. Manure Handling****a. Describe Manure handling at the facility:**

Solid manure is cleaned from the pens as needed and stockpiled. During the winter months the manure is composted. Both composted and raw manure are spread annually on fields after harvest. Most of the liquid from the lagoons evaporates. If the quantity of liquid in the lagoons needs to be reduced, it is conveyed to the corn/alfalfa crop ground.

**b. Frequency of Manure Removal from confinement areas:**

Annually

**c. Is this manure temporarily stored in any location other than the confinement area?** ☐ Yes ☒ No  
If so then how and where?

**d. Is manure stored on impervious surface?** ☐ Yes ☒ No

If yes, describe type and characteristics of this surface:

**3. Waste Control Structures**

Waste Control Structures (name/type)	Length (ft.)	Width (ft.)	Depth (ft.)	Volume (cubic ft. or gallons)	Number of days of storage
1.Storage Pond #1	460	151	10	5,209,500 g	365
2.Storage Pond #2	300	210	4	1,890,000 g	365
3.Storage Pond #3	136	88	8	718,080 gal	365
4.					
5.					
6.					
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8.					
9.					
10.					
11.					
12.					

What is the 24 hr. 25 yr. storm event at this facility 2.7 inches

Production area: 56 acres. Type of lot (dirt or paved): dirt

Area contributing drainage form outside CAFO that enters confinement areas and waste storage, conveyance, or treatment structures: 0 acres.

What is the annual precipitation during the critical storage period 4.36 inches

How much freeboard do the pond(s) have 1 foot when filled to capacity

**4. Disposal of Dead Animals.**

**Describe how dead animals are disposed of at this facility:**

Dead animals are transferred to Baker Commodities (rendered) or are composted in the manure pile.

## **5. Clean Water Diversion Practices**

**Describe how clean water is diverted from production area:**

The up gradient area of the entire production facility is bermed and diked to prevent any clean water from entering the production facility.

## **6. Prohibiting Animals and Wastes from Contact with State Waters**

**Describe how animals and wastes are prohibited from direct contact with state waters:**

Animals remain inside fenced areas preventing any direct contact with state waters.

**Describe how Chemicals and other contaminants are handled on-site:**

All chemicals used on site are handled according to label directions. Containers are disposed of in the City of Billings landfill.

## **7. Best Management Practice (BMPS)**

**Describe in detail all temporary, permanent and structural BMPS which will be used to control runoff of pollutants from facility's production area. Indicate the location of these measures. If BMPS are not installed include a schedule for implementation of each of these measures. Examples of BMP measures could include but are not limited to: constructing ditches, terraces,, and waterways above and open lot to divert clean water run on; installing gutters, downspouts and buried conduits to divert roof drainage; providing more roofed area: decreasing open lot surface area; repairing of adjusting water systems to minimize water wastage; using practical amounts of water for cooling purposes; recycling water if practical and applicable.**

**Production Area BMP's**

- Berms and dikes prevent any clean water from entering the production facility.
- All livestock water devices are maintained to prevent any run over.
- Pen drainage is maintained to insure effluent reaches waste control structures.

**Describe in detail all temporary, permanent and structural Best Management Practices (BMPs) which will be used to control runoff of pollutants from facility's land production area. Indicate the location of these practices. If not already in use, include a schedule for implementation of each of these measures. Attached details and specifications may be used to supplement this description. Examples of BMP measures could include but are not limited to: maintaining setbacks from surface waters for manure applications; managing irrigation practices to prevent ponding of wastewater on land application sites;**

never spray irrigating waste on to frozen ground: consulting with the Department prior to applying any liquid waste to frozen or snow-covered ground; applying wastes at agronomic rates.

**Land Application BMP's**

The manure is spread on the fields after corn harvest (late summer or early fall). The fields are generally not irrigated after manure application. The next irrigation occurs approximately five months after manure application incorporation. The Montana DEQ will be notified before any liquid waste is applied to frozen or snow covered ground. All manure is applied at agronomic rates based on the Phosphorus Index.

Buffers ☒ Yes ☐ No

Conservation Tillage ☒ Yes ☐ No

Constructed Wetlands ☐ Yes ☒ No

Grass Filter ☒ Yes ☐ No

Infiltration Field ☐ Yes ☒ No

Residue Management ☒ Yes ☐ No

Set backs ☒ Yes ☐ No

Terrace ☐ Yes ☒ No

Other examples

**8. Implementation, Operation, Maintenance and Record Keeping – Guidance**

The permittee is required to develop guidance addressing implementation of NMP, proper operation and maintenance of the facility, and record keeping as described in Part 2 of the permit.

Has a guidance document been developed for the facility? ☒ Yes ☐ No

Certify the document address the following requirements:

Implementation of the NMP: ☒ Yes ☐ No

Facility operation and maintenance: ☒ Yes ☐ No

Record keeping and reporting ☒ Yes ☐ No

Sample collection and analysis: ☒ Yes ☐ No

Manure transfer ☒ Yes ☐ No

Provide name, date and location of most recent documentation:

Vogel Feeders NMP Guidance Document

February 2009 updated October 2013

Vogel Feeders Office

If your answer to any of the above question is no, provide explanation:

may be applied. If a new field is added in the future, then the permittee must submit a revised (modified) NMP. The permittee has the option of using Method A or Method B (below) to complete the assessment. Copies of all tables and calculations used to complete the assessments, as well as the results of the assessments, shall be submitted to the Department and copies shall be maintained on-site at the facility and available for Departmental review. The results of the assessments shall be used to determine the appropriate basis for land application of wastes from the facility.

#### Method Used

Indicate which method will be used to determine phosphorus application:

Method A – Representative Soil Sample

Method B – Phosphorus Index

#### Method A – Representative Soil Sample

- Obtain one or more representative soil sample(s) from the field per 17.30.1334
- Have the sample analyzed for Phosphorus by a qualified lab. The “Olsen P test” must be used for the analysis, and the result must be reported in parts per million (ppm)
- Using the results of the Olsen P test, determine application basis according to the Table below.

#### Soil Test

Olsen P Soil Test Results (ppm)	Application Basis
<25.0	Nitrogen Needs of Crop
25.1 - 100.0	Phosphorus Needs of Crop
100.0 – 150.0	Phosphorus Needs up to Crop Removal Rate
>150.0	No Application allowed

#### Method B – Phosphorus Index

- Complete a phosphorus Index according to the crop grown on each field. Complete table in Appendix A to calculate phosphorus index. For information on filling out specific sections in Appendix A, please refer to the method as described in Natural Resource Conservation Service (NRCS), Agronomy Technical Note MT-77 (rev3), January 2006.
- Using the calculated Total Phosphorus Index Value, assign the overall site/field vulnerability to phosphorus loss according to the table below.

#### Total Phosphorus

Total Phosphorus Index Value	Site Vulnerability to Phosphorus Loss
<11	Low
11-21	Medium
22-43	High
>43	Very High

- Using the calculated Site Vulnerability to Phosphorus Loss, determine the appropriate application basis according to the table below.

Site Vulnerability to Phosphorus Loss	Application Basis
Low	Nitrogen Needs
Medium	Nitrogen Needs
High	Phosphorus Need Up to Crop Removal
Very High	Phosphorus Crop Removal or No Application

The applicant has 2 ways in which to report how manure or process wastewater application rates can be reported to DEQ.

**1. Linear Approach.** Expresses rates of application as pounds of nitrogen and phosphorus. CAFOs selecting the linear approach to address rates of application must include in the NMP submitted to the permitting authority the following information for each crop, field, and year covered by the NMP, which will be used by the permitting authority to establish site-specific permit terms:

- The maximum application rate (pounds/acre/year of nitrogen and phosphorus) from manure, litter, and process wastewater.
- The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field. [If a state does not have an N transport risk assessment, the NMP must document any basis for assuming that nitrogen will be fully used by crops.] The CAFO must specify any conservation practices used in calculating the risk rating.
- The crops to be planted or any other uses of a field such as pasture or fallow fields.
- The realistic annual yield goal for each crop or use identified for each field.
- The nitrogen and phosphorus recommendations from in ARM 17.30.1334 (technical standard) for each crop or use identified for each field.
- Credits for all residual nitrogen in each field that will be plant-available.
- Consideration of multi-year phosphorus application. For any field where nutrients are applied at a rate based on the crop phosphorus requirement, the NMP must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement.
- All other additions of plant available nitrogen and phosphorus (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen).
- The form and source of manure, litter, and process wastewater to be land-applied.
- The timing and method of land application. The NMP also must include storage capacities needed to ensure adequate storage that accommodates the timing indicated.
- The methodology that will be used to account for the amount of nitrogen and phosphorus in the manure, litter, and wastewater to be applied.
- Any other factors necessary to determine the maximum application rate identified in accordance with this Linear Approach.

**2. Narrative Rate Approach.** Expresses a narrative rate of application that results in the amount, in tons or gallons, of manure, litter, and process wastewater to be land applied. CAFOs selecting the narrative rate approach to address rates of application must include in the NMP submitted to the permitting authority the following information for each crop, field, and year covered by the NMP, which will be used by the permitting authority to establish site-specific permit terms:

- The maximum amounts of nitrogen and phosphorus that will be derived from all sources of nutrients (pounds/acre for each crop and field).
- The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field. The CAFO must specify any conservation practices used in calculating the risk rating.
- The crops to be planted in each field or any other uses of a field such as pasture or fallow fields, including alternative crops if applicable. Any alternative crops included in the NMP must be listed by field, in addition to the crops identified in the planned crop rotation for that field.
- The realistic annual yield goal for each crop or use identified for each field for each year, including any alternative crops identified.
- The nitrogen and phosphorus recommendations from *[the permitting authority to specify acceptable sources]* for each crop or use identified for each field, including any alternative crops identified.
- The methodology (including formulas, sources of data, protocols for making determination, etc.) and actual data that will be used to account for: (1) the results of soil tests required by Parts II.A.4.b and III.A.3.g of this

permit, (2) credits for all nitrogen in the field that will be plant- available, (3) the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied, (4) consideration of multi-year phosphorus application (for any field where nutrients are applied at a rate based on the crop phosphorus requirement, the methodology must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement), (5) all other additions of plant available nitrogen and phosphorus to the field (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen), (6) timing and method of land application, and (7) volatilization of nitrogen and mineralization of organic nitrogen.

- Any other factors necessary to determine the amounts of nitrogen and phosphorus to be applied in accordance with the Narrative Rate Approach.

- NMPs using the Narrative Rate Approach must also include the following projections, which will not be used by the permitting authority in establishing site-specific permit terms:

- i. Planned crop rotations for each field for the period of permit coverage.
- ii. Projected amount of manure, litter, or process wastewater to be applied.
- iii. Projected credits for all nitrogen in the field that will be plant-available.
- iv. Consideration of multi-year phosphorus application.
- v. Accounting for other additions of plant-available nitrogen and phosphorus to the field.
- vi. The predicted form, source, and method of application of manure, litter, and process wastewater for each crop

- If the receiving water is on the 303(d) list for nutrients then the narrative rate approach must be used.

- a. For the Linear Approach the permittee will complete the Nutrient Budget Worksheet, below, for the next 5 years to which manure or process waste water is or may be applied. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department.

## Nutrient Budget Worksheet

Field identification: 1-33

Year: 2015

Crop: Corn

Expected Crop Yield: 30 ton/ac

Phosphorus index results or Phosphorus application from soil test: 24

Method of Application: Broadcast

When will application occur: Fall 2014

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	270	264	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	39	0	Soil Test
3	(-)	Residuals from past manure production lbs/acre	30	10	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		= <b>Additional Nutrients Needed, lbs/acre</b>	201	264	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	13.2	14.0	Ward Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.6	1.0	NRCS
9		= <b>Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	7.9	14.0	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	201	264	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.9	14.0	
12		= <b>Manure Application Rate, tons/acre or 1000 gal/acre</b>	25	18	Calculation

Comments:

Actual application rate was 10 ton per acre.

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## Nutrient Budget Worksheet

Field identification: 8-25

Year: 2015

Crop: Corn

Expected Crop Yield: 30 ton/ac

Phosphorus index results or Phosphorus application from soil test: 22

Method of Application: Broadcast

When will application occur: Fall 2014

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	270	264	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	19	0	
3	(-)	Residuals from past manure production lbs/acre	30	10	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		= <b>Additional Nutrients Needed, lbs/acre</b>	221	264	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	13.2	14.0	Ward Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.6	1.0	NRCS
9		= <b>Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	7.9	14.0	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	221	264	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.9	14.0	
12		= <b>Manure Application Rate, tons/acre or 1000 gal/acre</b>	28	18	Calculation

Comments:

Actual application rate was 10 ton per acre.

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## Nutrient Budget Worksheet

Field identification: 9-48

Year: 2015

Crop: Corn

Expected Crop Yield: 30 ton/ac

Phosphorus index results or Phosphorus application from soil test: 24

Method of Application: Broadcast

When will application occur: Fall 2014

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	270	264	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	15	0	Soil Test
3	(-)	Residuals from past manure production lbs/acre	30	10	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		= <b>Additional Nutrients Needed, lbs/acre</b>	225	264	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	13.2	14.0	Ward Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.6	1.0	NRCS
9		= <b>Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	7.9	14.0	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	225	264	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.9	14.0	
12		= <b>Manure Application Rate, tons/acre or 1000 gal/acre</b>	28	18	Calculation

Comments:

Actual application rate was 13 ton per acre.

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## Nutrient Budget Worksheet

Field identification: 13-65		Year: 2015	Crop: Corn		
Expected Crop Yield: 30 ton/ac					
Phosphorus index results or Phosphorus application from soil test: 24					
Method of Application: Broadcast					
When will application occur: Fall 2014					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	270	264	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	47	0	Soil Test
3	(-)	Residuals from past manure production lbs/acre	30	10	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		= <b>Additional Nutrients Needed, lbs/acre</b>	193	264	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	13.2	14.0	Ward Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.6	1.0	NRCS
9		= <b>Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	7.9	14.0	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	193	264	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.9	14.0	
12		= <b>Manure Application Rate, tons/acre or 1000 gal/acre</b>	18	18	Calculation

Comments:

Actual application rate was 11 ton per acre.

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## Nutrient Budget Worksheet

Field identification: 16-60		Year: 2015	Crop: Corn		
Expected Crop Yield: 30 ton/ac					
Phosphorus index results or Phosphorus application from soil test: 21					
Method of Application: Broadcast					
When will application occur: Fall 2014					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	270	264	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	46	0	Soil Test
3	(-)	Residuals from past manure production lbs/acre	30	10	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		= <b>Additional Nutrients Needed, lbs/acre</b>	194	264	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	13.2	14.0	Ward Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.6	1.0	NRCS
9		= <b>Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	7.9	14.0	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	194	264	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.9	14.0	
12		= <b>Manure Application Rate, tons/acre or 1000 gal/acre</b>	24	18	Calculation

Comments:

Actual application rate was 11 ton per acre.

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## Nutrient Budget Worksheet

Field identification: 17-72

Year: 2015

Crop: Corn

Expected Crop Yield: 30 ton/ac

Phosphorus index results or Phosphorus application from soil test: 24

Method of Application: Broadcast

When will application occur: Fall 2014

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	270	264	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	26	0	Soil Test
3	(-)	Residuals from past manure production lbs/acre	30	10	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		= <b>Additional Nutrients Needed, lbs/acre</b>	214	264	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	13.2	14.0	Ward Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.6	1.0	NRCS
9		= <b>Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	7.9	14.0	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	214	264	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.9	14.0	
12		= <b>Manure Application Rate, tons/acre or 1000 gal/acre</b>	27	18	Calculation

Comments:

Actual application rate was 11 ton per acre.

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## Nutrient Budget Worksheet

Field identification: 18-38		Year: 2015	Crop: Corn		
Expected Crop Yield: 30 ton/ac					
Phosphorus index results or Phosphorus application from soil test: 24					
Method of Application: Broadcast					
When will application occur: Fall 2014					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	270	264	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	50	0	
3	(-)	Residuals from past manure production lbs/acre	30	10	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		= <b>Additional Nutrients Needed, lbs/acre</b>	190	264	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	13.2	14.0	Ward Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.6	1.0	NRCS
9		= <b>Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	7.9	14.0	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	190	264	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.9	14.0	
12		= <b>Manure Application Rate, tons/acre or 1000 gal/acre</b>	24	18	Calculation

Comments:

Actual application rate was 9 ton per acre.

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# Nutrient Budget Worksheet

Field identification: 21-72      Year: 2015      Crop: Corn  
 Expected Crop Yield: 30 ton/ac  
 Phosphorus index results or Phosphorus application from soil test: 12  
 Method of Application: Broadcast  
 When will application occur: Fall 2014

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	270	264	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	41	0	Soil Test
3	(-)	Residuals from past manure production lbs/acre	30	10	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		= <b>Additional Nutrients Needed, lbs/acre</b>	199	264	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	13.2	14.0	Ward Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.6	1.0	NRCS
9		= <b>Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	7.9	14.0	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	199	264	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.9	14.0	
12		= <b>Manure Application Rate, tons/acre or 1000 gal/acre</b>	25	18	Calculation

Comments:

Actual application rate was 10 ton per acre.

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## Nutrient Budget Worksheet

Field identification: 22-80

Year: 2015

Crop: Corn

Expected Crop Yield: 30 ton/ac

Phosphorus index results or Phosphorus application from soil test: 12

Method of Application: Irrigation-Lagoon Water Application

When will application occur: Fall 2014

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	270	264	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	63	0	Soil Test
3	(-)	Residuals from past manure production lbs/acre	20	10	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		= <b>Additional Nutrients Needed, lbs/acre</b>	187	264	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	3.14	0.75	Energy Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	1.0	1.0	NRCS
9		= <b>Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	3.14	0.75	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	187	264	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	3.14	0.75	
12		= <b>Manure Application Rate, tons/acre or 1000 gal/acre</b>	60	352	Calculation

Comments:

Actual application rate was 15.2 1000 gal/acre.

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# Nutrient Budget Worksheet

Field identification: DL-1W		Year: 2015	Crop: Sunflowers		
Expected Crop Yield: 1900 lbs/ac					
Phosphorus index results or Phosphorus application from soil test: 18					
Method of Application: Broadcast					
When will application occur: Fall 2014					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	95	12.2	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	21	0	Soil Test
3	(-)	Residuals from past manure production lbs/acre	0	0	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		= <b>Additional Nutrients Needed, lbs/acre</b>	74	12.2	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	13.2	14.0	Ward Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.6	1.0	NRCS
9		= <b>Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	7.9	14.0	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	74	12.2	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.9	14.0	
12		= <b>Manure Application Rate, tons/acre or 1000 gal/acre</b>	9	1	Calculation

Comments:

Actual application rate was 9 ton per acre.

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**Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)**

Field: DL-1W		Crop: Sunflowers				Year: 2015		
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	4	X 0.5	2
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	8	X 1.0	8
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	4	X 1.0	4
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	0	X 1.0	0
<b>Total Phosphorus Index Value:</b>						18		

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## Nutrient Budget Worksheet

Field identification: DL-1E

Year: 2015

Crop: Winter Wheat

Expected Crop Yield: 50 bu/ac

Phosphorus index results or Phosphorus application from soil test: 18

Method of Application: Broadcast

When will application occur: Fall 2014

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	130	31	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	3	0	Soil Test
3	(-)	Residuals from past manure production lbs/acre	0	0	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		= <b>Additional Nutrients Needed, lbs/acre</b>	127	31	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	13.2	14.0	Ward Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.6	1.0	NRCS
9		= <b>Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	7.9	14.0	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	127	31	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.9	14.0	
12		= <b>Manure Application Rate, tons/acre or 1000 gal/acre</b>	11	2.2	Calculation

Comments:

Actual application rate was 9 ton per acre.

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DEQ-WPS

**Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)**

Field: DL-1E		Crop: Winter Wheat		Year: 2015				
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	4	X 0.5	2
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	8	X 1.0	8
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	4	X 1.0	4
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	0	X 1.0	0
<b>Total Phosphorus Index Value:</b>						18		

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## Nutrient Budget Worksheet

Field identification: DL-4		Year: 2015	Crop: Cover Crop		
Expected Crop Yield: 2000 lbs/ac (sunflower)					
Phosphorus index results or Phosphorus application from soil test: 18					
Method of Application: Broadcast					
When will application occur: Fall 2014					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	100	12.8	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	14	0	Soil Test
3	(-)	Residuals from past manure production lbs/acre	0	0	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		<b>= Additional Nutrients Needed, lbs/acre</b>	86	12.8	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	13.2	14.0	Ward Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.6	1.0	NRCS
9		<b>= Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	7.9	14.0	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	86	12.8	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.9	14.0	
12		<b>= Manure Application Rate, tons/acre or 1000 gal/acre</b>	11	1	Calculation

Comments:

Actual application rate was 9 ton per acre.

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**Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)**

Field: DL-4		Crop: Cover Crop				Year: 2015		
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	4	X 0.5	2
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	8	X 1.0	8
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	4	X 1.0	4
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	0	X 1.0	0
<b>Total Phosphorus Index Value:</b>						18		

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August 2013

CAFO Nutrient Management Plan

 Page 16 of 16  
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 DEQWPE  
 PERMITTING & COMPLIANCE DIV

## Nutrient Budget Worksheet

Field identification: DL-5

Year: 2015

Crop: Winter Wheat

Expected Crop Yield: 50 bu/ac

Phosphorus index results or Phosphorus application from soil test: 18

Method of Application: Broadcast

When will application occur: Fall 2014

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	130	31	MSU #EB 161
2	(-)	Credits from previous legume crops, lbs/ac	22	0	Soil Test
3	(-)	Residuals from past manure production lbs/acre	0	0	Estimated
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0	0	
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0	0	
6		<b>= Additional Nutrients Needed, lbs/acre</b>	108	31	
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	13.2	14.0	Ward Labs
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	0.6	1.0	NRCS
9		<b>= Available Nutrients in Manure, lbs/ton or lbs/1000 gal</b>	7.9	14.0	Calculation
10		Additional Nutrients needed, lbs/acre (calculated above)	108	31	
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.9	14.0	
12		<b>= Manure Application Rate, tons/acre or 1000 gal/acre</b>	13	2	Calculation

Comments:

Actual application rate was 9 ton per acre.

**Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)**

Field: DL-5		Crop: Winter Wheat				Year: 2015		
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	4	X 0.5	2
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	1	X 1.0	1
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	1	X 1.0	1
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	8	X 1.0	8
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	4	X 1.0	4
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	0	X 1.0	0
<b>Total Phosphorus Index Value:</b>						18		

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CAFO Nutrient Management Plan

Page 16 of 16

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## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Vogel Land and Cattle Company  
**Project:** Lagoon Sampling Discharge Permit  
**Lab ID:** B14070480-001  
**Client Sample ID:** Lagoon

**Revised Date:** 07/22/14  
**Report Date:** 07/18/14  
**Collection Date:** 07/03/14 16:28  
**Date Received:** 07/07/14  
**Matrix:** Sludge

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>CHEMICAL CHARACTERISTICS</b>							
Conductivity	9.7	mmhos/cm		0.1		ASA10-3	07/17/14 11:30 / srm
Total Kjeldahl Nitrogen	3.14	lbs/1000 g		0.08		ASA31-3	07/18/14 10:17 / srm
Ammonia as N, KCL Extract	0.607	lbs/1000 g		0.008		ASA33-7	07/09/14 11:40 / srm
Nitrate as N, KCL Extract	0.041	lbs/1000 g		0.008		ASA33-8	07/09/14 13:08 / srm
- The analysis was performed on an as received moisture basis							
<b>METALS, TOTAL - EPA SW846</b>							
Phosphorus	0.75	lbs/1000 g		0.04		SW6010B	07/09/14 22:12 / mas

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.

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# Laboratories, Inc.

Ag Testing - Consulting

Account No. : 23228

## Manure Analysis Report

VOGEL, KATE  
NORTH 40 AG  
2150 S 14TH RD  
BALLANTINE

MT 59006

Invoice No. : 1164945  
Date Received : 09/25/2014  
Date Reported : 09/25/2014

Lab No. : 1929

Results For : VLCC

Sample ID :

MANURE

	Analysis Dry Basis	Lbs / Ton		Available First Year
		Dry Basis	As Is Basis	
Organic N, % N	1.46	29.2	13.0	6.5
Ammonium, % N	0.019	0.4	0.2	0.2
Nitrate, % N	< 0.001	0.0	0.0	0.0
Total N (TKN), % N	1.48	29.5	13.2	6.7
Phosphorus, % P <sub>2</sub> O <sub>5</sub>	1.57	31.4	14.0	9.8
Potassium, % K <sub>2</sub> O	2.25	45.0	20.0	18.0
Sulfur, % S	0.48	9.6	4.3	1.7
Calcium, % Ca	2.20	44.0	19.6	13.7
Magnesium, % Mg	1.04	20.8	9.3	6.5
Sodium, % Na	0.26	5.1	2.3	2.3
Sodium Adsorption Ratio (SAR)	3.54			
Zinc, ppm Zn	313.3	0.6	0.3	0.2
Iron, ppm Fe	8391.4	16.8	7.5	5.2
Manganese, ppm Mn	350.2	0.7	0.3	0.2
Copper, ppm Cu	84.7	0.2	0.1	0.1
Soluble Salts, mmho / cm	32.18	41.2	18.3	18.3
pH	8.4			
Moisture, %	55.49			
Dry Matter (TS), %	44.51			

"<" - Not Detected / Below Detection Limit

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PERMITS & COMPLIANCE DIV.

Reviewed By : Nick Ward

9/26/2014 Copy : 1

Page 1 of 1

Bus: 308-234-2418  
Fax: 308-234-1940

web site  
www.wardlab.com

4007 Cherry Ave., P.O. Box 788  
Kearney, Nebraska 68848-0788

**Section F - CERTIFICATION**

**Permittee Information:** This form must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

**All Permittees Must Complete the Following Certification:**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

**A. Name (Type or Print)**

Dan Vogel

**B. Title (Type or Print)**

President/Owner

**C. Phone No.**

(406) 967-2966

**D. Signature**

*Daniel J Vogel*

**E. Date Signed**

10-29-2013

*The Department will not process this form until all of the requested information is supplied, and the appropriate fees are paid. Return this form and the applicable fee to:*

Department of Environmental Quality  
Water Protection Bureau  
PO Box 200901  
Helena, MT 59620-0901  
(406) 444-3080

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PERMITTING & COMPLIANCE DIV

# INSTRUCTION FOR Form NMP – Nutrient Management Plan Associated With Concentrated Animal Feeding Operations

You may need the following items in order to complete this form: A copy of your most recently submitted NOI-CAFO: United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), No. 80.1 Nutrient Management, Agronomy Technical Note MT-11 (revision 3), January 2006; Montana State University Extension Service Publication 161, Fertilizer Guidelines for Montana Crops; United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Sampling Soils for Nutrient Management – Manure Resource, MT 04/07; Montana State University, Mont Guide, Interpretation of Soil Test Reports for Agriculture, MT200702AG, July, 2007; United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Conservation Practice Standard, Code 590 (November 2006) and Waste Utilization, Code 633 (August 2000).

Please type or print legibly; forms that are not legible will be considered incomplete.

## SPECIFIC ITEM INSTRUCTIONS

### Section A – NMP Status:

Check the box that applies and provide the requested information. If the Form NMP has not been previously submitted for this site, check the first box (New). If you submitted a FORM NMP and the department found it to be incomplete, check the second box (Resubmitted);

If you were notified by the Department that the permit coverage expired and you are now submitting and updated Form NMP, check the third Box (Modification). If you have received a deficiency letter in regard to your NMP application the facilities assigned designation will be noted in the RE: line starting with MTG#####. If the site is covered under *the General Permit for Concentrated Animal Feeding Operation*, the number is given on the Authorization letter sent to you by the Department. The permit number must be included on any correspondence with the Department regarding this site.

### Section B – Facility Information:

The information must be stated exactly the same way as it was stated on the most recently submitted version of your form NOI-CAFO.

### Section C – Applicant (Owner/Operator) Information:

The information must be stated exactly the same way as it was stated on the most recently submitted version of your form NOI-CAFO.

### Section D – Waste Management Minimum Elements:

**1. Livestock Statistics:** Identify each type of animal confined at this facility. The definition of “type” could include animals of a given species, animals of a given weight class (e.g. piglets, sows), or animals housed for a specific purpose (e.g. dry cows, milking cows).

“number of days on site per year” means the number of days at least one animal of a given type is held in confinement during 12-month period.

“Annual manure production” means the volume of manure (from a given animal type) that is stored, land applied, or transferred to another person during any given 12-month period.

“Method used for estimating annual manure production.” When describing the method used to calculate annual manure production, include all formulas, factors, references to tables, and other resources used to calculate manure production. Be sure to account for soiled bedding materials and manure-contaminated runoff water, which is also consider manure under state regulations. For example on how to calculate manure production see <http://animalrangeextension.montana.edu/articles/natresourc/cnmp/nonprint/step2.htm>.

## **2. Manure Handling**

Describe manure handling at the facility.

**3. Waste Control Structures.** List all waste control structures. These may include, but are not limited to, manure lagoons, manure ponds. Evaporation ponds, wastewater retention ponds, contaminated runoff retention ponds, settling basins, underground storage tanks, underfloor pits, manure solids stacking pads, vegetative treatment strips, composting facilities, and dry stack facilities. Berms, dikes, concrete curbs, ditches, and waste transfer pipelines are also waste control structures and must be listed; though some of the requested measurements may not apply (e.g. “column” usually does not apply to a waste transfer pipeline).

“25-year 24-hour rainfall event” means a precipitation event with a probable recurrence interval of once in 25 years as defined by the National Weather Service in Technical Paper Number 40, “Rainfall Frequency Atlas of the United States,” May 1961, and subsequent amendments, or the equivalent regional or state rainfall probability information developed therefrom.

“Critical Storage period” The minimum design volume for liquid manure storage structures is based on the expected length of time between emptying events that result in maximum production of process wastewater, including runoff from the production area. That period is the *critical storage period*. The critical storage period is considered to the 180 days starting November 1<sup>st</sup> to April 30.

**4. Disposal of Dead Animals.** Please be as specific as possible with the information that you provide. For example, if dead animals are disposed of by burial, the method/practice description should include the fact that they are buried, how quickly after death they are hauled to the burial site, and how quickly they are covered with soil and the depth of the soil cover over the animal. The method/practice location information should be detailed enough that an inspector can find the site without the need for additional guidance (e.g. latitude and longitude). It may not simply reference a map.

**5. Clean Water Diversion Practices,** The practice description does not need to be any more detailed than “berm”, “ditch”, grassy swale,” etc. The practice location may not simply reference a map.

**6. Prohibiting Animals & wastes from Contact with State Waters.** The practice description does not need to be any more detailed than “fence”, “wall”, etc. The practice location may not simply reference a map.

*Chemicals and Contaminants.* List all major chemicals or other contaminants handled on site as part of your CAFO operation. This would include, but not limited to, pesticides, herbicides, animal dips, disinfectants, etc. Specify the method of disposal for each chemical/contaminant.

7. Best Management Practice (BMPs). Describe the BMPs used to control runoff of pollutants from the production area, and land application area. Please note that “production area” means that part of a CAFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The “animal confinement area” includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, animal walkways, and stables. The “manure storage area” includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The “raw material storage area” includes but is not limited to feed silos, silage bunkers, and bedding materials. The “waste containment area” includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities. If you transfer all of the wastes your CAFO produces, and do not land apply any of it to ground under your operational control, then you will not have any land application area BMPs to describe.

#### **Section E – Land Application:**

If all of the manure produced at your facility will be transferred to other persons for use in areas beyond your operational control, then you do not need to provide the information requested in Section E. of this form.

##### *Photos and/or maps:*

Manure /waste handling and nutrient management restrictions that must be on the photo/map include buffers and setbacks around state surface waters, well heads, etc.

##### *Nutrient Management and Waste Utilization via Land Application:*

The purpose for having two options is to allow the producer to make use of the valuable technical assistance provided by the USDA’s Natural Resources Conservation (NRCS), if you should desire.

##### *Land Application Equipment Calibration:*

Land application equipment calibration is essential to ensuring that nutrients are being applied at agronomic rates. Please provide specific information on how equipment will be calibrated. The CAFO shall maintain the supporting documentation on site and shall make this information available to DEQ upon request.

*Manure sampling and Analysis:* Manure must be sampled per ARM 17.30.1334.

When sending manure or soil samples to a laboratory for analysis, it is your responsibility to make sure that the lab uses the correct sampling procedures. Approved Laboratories can be found in Montana State University Extension Service Publication 4449-1, Soil Sampling and Laboratory Selection, June 2005. Before you take any samples, talk to the lab that you intend to use. Ask them if they have specific instructions in order to help ensure

that the analysis results you get are as accurate as possible. If they do, then you must follow their instructions in order to help ensure that the analysis results you get are as accurate as possible.

Linear Approach Nutrient budget work Sheet. You will most likely need to fill out multiple photocopies of the nutrient budget work sheet.

Line 1 Enter in the planned crop nutrient needs in pounds per acre from <http://deq.mt.gov/wqinfo/mpdes/cafo.mcp> MSU EB 161.

Line 2 Enter the credits from previous legume crop pounds per acre. See <http://deq.mt.gov/wqinfo/mpdes/cafo.mcp> for Legume crop credits.

Line 3 Enter nutrient credits from second year manure applications pounds per acre. See <http://deq.mt.gov/wqinfo/mpdes/cafo.mcp> for mineralization rate

Line 4 Enter nutrients supplied by commercial fertilizer in pounds per acre. This can be starter or other fertilizer that is applied prior to manure application.

Line 5 Enter nutrients supplied by any irrigation water in pounds per acre.

Line 6 Subtract lines 2 through 5 from line 1 and enter in the space provided

Line 7 Enter in the nitrogen or phosphorus from sample taken of manure or process waster water within the last year.

Line 8 Enter in the Nutrient Avalibility Factor. See <http://deq.mt.gov/wqinfo/mpdes/cafo.mcp> for Nitrogen Avalibility factor. Enter 1 for phosphorus.

#### ***Section F – Certification:***

If Form NMP is filled out by one person and signed by another, the person signing the document should read it thoroughly. Always retain a copy of each of the documents that you send to the Department.

If you have any questions concerning how to fill out this form, or other forms related to the Montana Pollutant Discharge Elimination System (MPDES) discharge permitting program, please contact the Department's Water Protection Bureau at:

Phone: (406) 444-3080

Fax: (406) 444-1374

1520 East Sixth Avenue

P.O. Box 200901

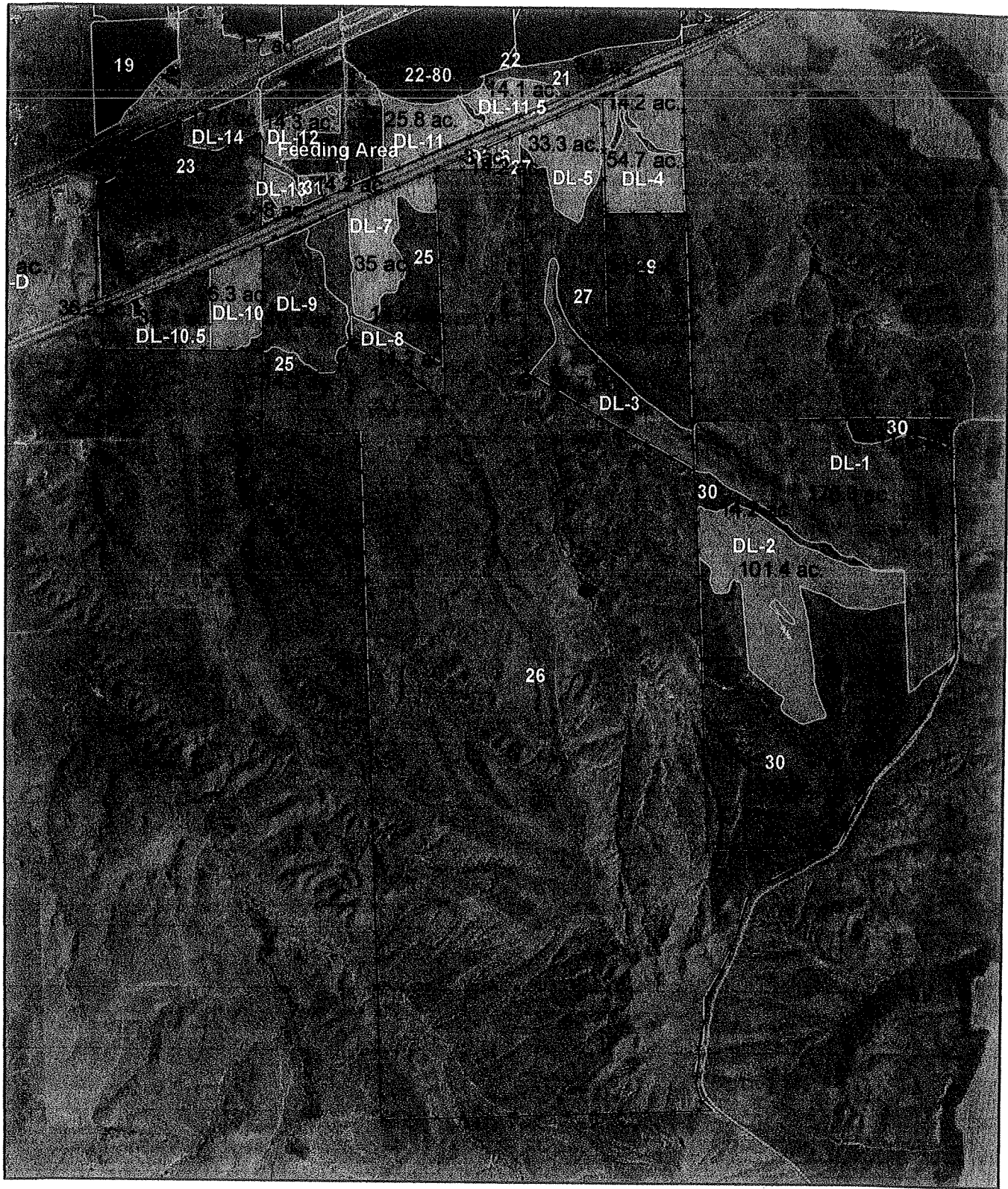
Helena, MT 59620-0901

**Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)**

Field:		Crop:			Year:		Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)				
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils		X 1.5		
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils		X 1.5		
Sprinkler Irrigation Erosion	All fields 0- 3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3- 15% slopes, large spray on silty soils 8- 15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3- 8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes		X 1.5		
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High		X 0.5		
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm		X 0.5		
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges		X 1.0		
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205		X 1.0		
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges		X 1.0		
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205		X 1.0		
Distance to Concentrate d Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrate d surface water flow areas.		X 1.0		
<b>Total Phosphorus Index Value:</b>									



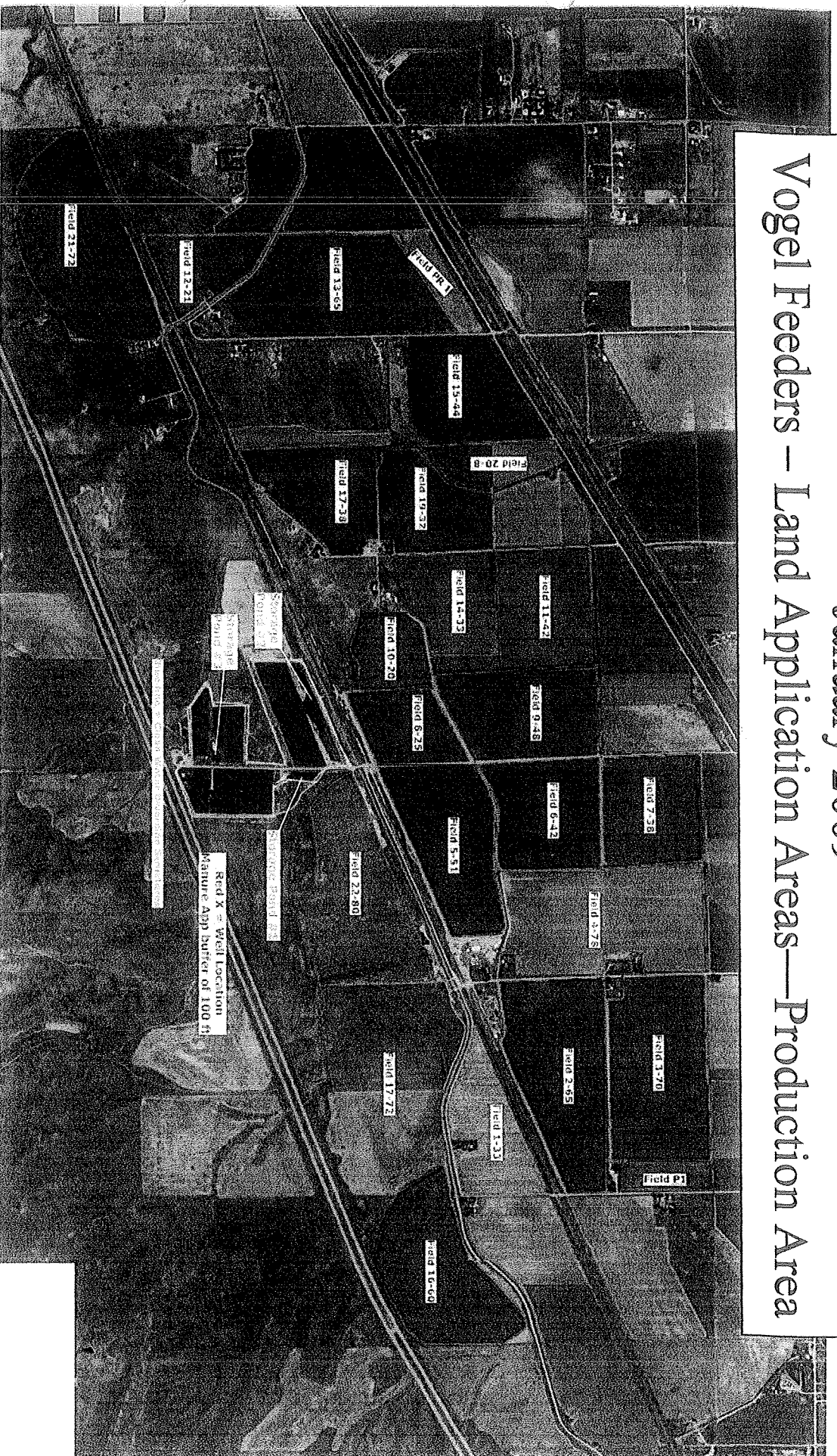
## VLCC Inventory



# VLCC Inventory



# January 2009 Vogel Feeders – Land Application Areas—Production Area



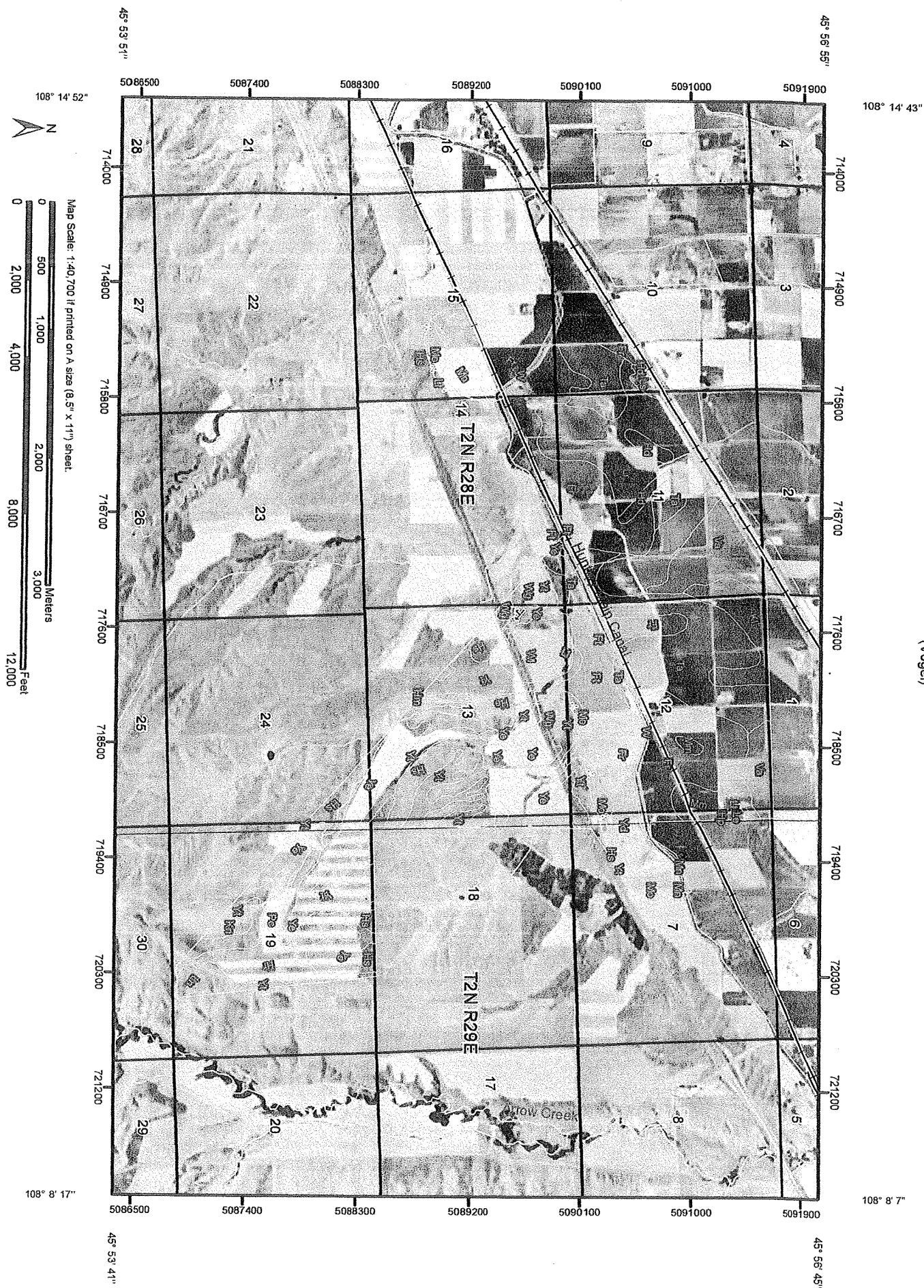


January 2009  
Vogel Feeders – Land Application Area





# Soil Map—Yellowstone County, Montana (Vogel)



# Soil Map—Yellowstone County, Montana (Vogel)

Version 1.2

## MAP LEGEND

Area of Interest (AOI)	Very Stony Spot
Area of Interest (AOI)	Wet Spot
Soils	Other
Soil Map Units	Special Line Features
Special Point Features	Gully
Blowout	Short Steep Slope
Borrow Pit	Other
Clay Spot	Political Features
Closed Depression	Cities
Gravel Pit	PLSS Township and Range
Gravelly Spot	PLSS Section
Landfill	Water Features
Lava Flow	Oceans
Marsh or swamp	Streams and Canals
Mine or Quarry	Transportation
Miscellaneous Water	Rails
Perennial Water	Interstate Highways
Rock Outcrop	US Routes
Saline Spot	Major Roads
Sandy Spot	
Severely Eroded Spot	
Sinkhole	
Slide or Slip	
Sodic Spot	
Spoil Area	
Stony Spot	

## MAP INFORMATION

Map Scale: 1:40,700 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
Coordinate System: UTM Zone 12N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Yellowstone County, Montana  
Survey Area Data: Version 6, Nov 20, 2008

Date(s) aerial images were photographed: 8/10/1996, 8/24/1996

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

NMP

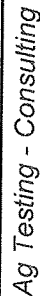


## Map Unit Legend

Yellowstone County, Montana (MT111)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Fr	Fort Collins and Thurlow clay loams, 0 to 1 percent slopes	435.8	17.4%
Ft	Fort Collins and Thurlow clay loams, 1 to 4 percent slopes	90.7	3.6%
Hd	Haverson silty clay loam, 0 to 1 percent slopes	24.1	1.0%
He	Haverson silty clay loam, 1 to 3 percent slopes	38.9	1.5%
Hm	Haverson and Lohmiller soils, channeled, 0 to 35 percent slopes	0.1	0.0%
Hp	Hesper silty clay loam, 0 to 1 percent slopes	1.4	0.1%
Hr	Hesper silty clay loam, 1 to 4 percent slopes	87.2	3.5%
Hs	Hilly, gravelly land	175.6	7.0%
Kl	Kyle silty clay, 0 to 1 percent slopes	61.3	2.4%
Kn	Kyle silty clay, 4 to 7 percent slopes	10.9	0.4%
Le	Larim loam, 0 to 4 percent slopes	2.5	0.1%
Li	Larim gravelly loam, 15 to 35 percent slopes	21.8	0.9%
Ln	Lismas clay, 15 to 35 percent slopes	53.3	2.1%
Lr	Lohmiller silty clay, 0 to 1 percent slopes	243.6	9.7%
Ls	Lohmiller soils, seeped, 0 to 2 percent slopes	8.3	0.3%
Mm	McRae loam, 0 to 1 percent slopes	31.6	1.3%
Mn	McRae loam, 1 to 4 percent slopes	26.8	1.1%
Mo	McRae loam, 4 to 7 percent slopes	40.6	1.6%
Pc	Pierre clay, 4 to 7 percent slopes	14.8	0.6%
Ta	Thurlow clay loam, 0 to 1 percent slopes	296.1	11.8%
Va	Vananda silty clay, 0 to 1 percent slopes	127.4	5.1%
W	Water	28.0	1.1%
Wg	Wanetta clay loam, 1 to 4 percent slopes	36.5	1.5%
Wl	Wanetta-Larim clay loams, 4 to 7 percent slopes	41.1	1.6%
Yd	Yegen sandy loam, 1 to 4 percent slopes	154.5	6.2%
Ye	Yegen sandy loam, 4 to 10 percent slopes	238.4	9.5%
Yt	Yegen and Toluca soils, 7 to 15 percent slopes	220.6	8.8%
<b>Totals for Area of Interest</b>		<b>2,511.7</b>	<b>100.0%</b>







**Soil Analysis Report**

Invoice No.: 1142367  
Date Received: 10/14/2013  
Date Reported: 10/17/2013

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7033 HWY 312  
BILLINGS MT 59105

### Results For: VLCC

**Location:**

[illegible]

**Fertilizer Recommendations In Actual Pounds of Plant Nutrients per Acre**

Fertilizer Recommendations In Actual Pounds of Plant Nutrients per Acre														
Crop	Yield Goal	Nitrogen N	Phosphorus P <sub>2</sub> O <sub>5</sub>	Potassium K <sub>2</sub> O	Sulfur S	Zinc Zn	Magnesium Mg	Iron Fe	Manganese Mn	Copper Cu	Boron B	Chloride Cl	Lime, ECC Tons/Acre	
Sample ID : 3-70														
	Sub-Soil ID(s)	Depth(s) : 3-70   6 - 24 in			3-70   24 - 42 in			Past Crop : All Other Crops						N Credit : 0
(Ward) Corn, BU	50	10	0	0	0	0	0	0	0	0.0	0			
Sample ID : 4-78														
	Sub-Soil ID(s)	Depth(s) : 4-78   6 - 24 in			4-78   24 - 42 in			Past Crop : All Other Crops						N Credit : 0
(Ward) Corn, BU	50	20	0	0	0	0	0	0	3	0.0				

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Page 1 of 8

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Results For: VLCC  
 Location:

Sample ID		Soil pH 1:1	Modified WDRF BpH	Soluble Salts 1:1 mmho/cm	Excess Lime Rating	Organic Matter LOI-%	FIA Nitrate ppm N	Depth Nitrate Lbs N/A	Method Phosphorus ppm P	-Ammonium Acetate-				Ca-P Sulfate ppm S	-----DTPA-----				Hot Water Boron ppm B	CaNO <sub>3</sub> Chloride ppm Cl	Sum of Cations me/100g	% Base Saturation				
Lab No.										K ppm	Ca ppm	Mg ppm	Na ppm		Zn ppm	Fe ppm	Mn ppm	Cu ppm				H	K	Ca	Mg	Na
6-42									O-P																	
84321	7.7			0.77	HIGH	2.6	20.0	36	72.6	752	4947	1335	86	20	5.85	18.8	2.4	1.46			38.2	0	5	65	29	1
6-42								6 - 24 in	O-P																	
84322							10.9	59	16.3																	
6-42								24 - 42 in	O-P																	
84323							4.1	22	12.0																	
7-38								0 - 6 in	O-P																	
84324	7.7			0.74	LOW	3.7	12.9	23	73.7	991	4872	1354	77	18	6.39	21.5	3.2	1.83			38.5	0	7	63	29	1
7-38								6 - 24 in	O-P																	
84325							2.5	14	41.4																	
7-38								24 - 42 in	O-P																	
84326							2.1	12	16.4																	

Fertilizer Recommendations In Actual Pounds of Plant Nutrients per Acre

Crop	Yield Goal	Nitrogen N	Phosphorus P <sub>2</sub> O <sub>5</sub>	Potassium K <sub>2</sub> O	Sulfur S	Zinc Zn	Magnesium Mg	Iron Fe	Manganese Mn	Copper Cu	Boron B	Chloride Cl	Lime, ECC Tons/Acre
Sample ID: 6-42	Sub-Soil ID(s)   Depth(s): 6-42   6-24 in	0	0	0	0	0	0	0	0	0	0	0	0
(Ward) Corn, BU	50	0	0	0	0	0	0	0	5	0.0			
Sample ID: 7-38	Sub-Soil ID(s)   Depth(s): 7-38   6-24 in	10	0	0	0	0	0	0	2	0.0			
(Ward) Corn, BU	50	10	0	0	0	0	0	0	2	0.0			

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10/18/2013

Page 2 of 8

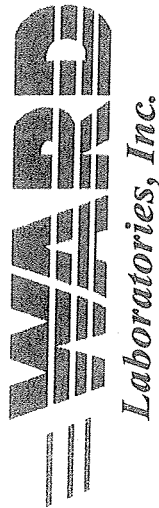
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Results For: VLCC

Location:

Sample ID	Soil pH 1:1	Modified WDRF BpH	Soluble Salts 1:1 mmho/cm	Excess Lime Rating	Organic Matter LOI-%	FIA Nitrate ppm N	Depth Nitrate Lbs N/A	Method Phosphorus ppm P	-Ammonium Acetate- K ppm Ca ppm Mg ppm Na ppm	Ca-P Sulfate ppm S	Zn ppm Fe ppm Mn ppm Cu ppm	Hot Water Boron ppm B	CaNO <sub>3</sub> Chloride ppm Cl	Sum of Cations me/100g	% Base Saturation H K Ca Mg Na
11W 84327	5.9	6.7	0.39	NONE	1.2	44.6	0 - 6 in 80	O-P 73.4	808 1895 613 20	15	1.45 77.6 28.9 1.40			19.6	15 11 48 26 0
11W 84328						13.5	6 - 24 in 73								
11E 84329	7.0		0.45	NONE	1.3	13.8	0 - 6 in 25	O-P 50.4	599 3057 927 23	11	1.44 35.9 10.5 1.32			24.6	0 6 62 31 0
11E 84330						2.9	6 - 24 in 16								
12 84331	7.2		0.57	HIGH	1.8	36.3	0 - 6 in 65	O-P 73.3	839 4739 695 17	15	1.21 56.7 8.4 1.10			31.7	0 7 75 18 0
12 84332						10.3	6 - 24 in 56								

Fertilizer Recommendations In Actual Pounds of Plant Nutrients per Acre

Crop	Yield Goal	Nitrogen N	Phosphorus P <sub>2</sub> O <sub>5</sub>	Potassium K <sub>2</sub> O	Sulfur S	Zinc Zn	Magnesium Mg	Iron Fe	Manganese Mn	Copper Cu	Boron B	Chloride Cl	Lime, ECC Tons/Acre
Sample ID : 12	Sub-Soil ID(s) : 12	Depth(s) : 12	6 - 24 in	0	0	0	0	0	0	0	0	0	N Credit : 0
(Ward) Wheat BU/A	35	0	0	0	0	0	0	0	0	0.0			

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Page 3 of 8

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 Date Received : 10/14/2013  
 Date Reported : 10/17/2013

Results For : VLCC

Location :

Sample ID	Soil pH 1:1	Modified WDRF BpH	Soluble Salts 1:1 mmho/cm	Excess Lime Rating	Organic Matter LOI-%	FIA Nitrate ppm N	Depth Nitrate Lbs N/A	Method Phosphorus ppm P	-Ammonium Acetate- K ppm Ca ppm Mg ppm Na ppm	Ca-P Sulfate ppm S	Zn ppm Fe ppm Mn ppm Cu ppm	Hot Water Boron ppm B	CaNO <sub>3</sub> Chloride ppm Cl	Sum of Cations me/100g	% Base Saturation H K Ca Mg Na
84333	7.4		0.64	NONE	1.8	36.8	0 - 6 in	O-P 44.4	804 3276 531 22	14	1.67 13.5 4.9 0.82			23.0	0 9 71 19 0
84334						19.0	6 - 24 in								
84335						12.0	24 - 42 in								
84336	7.6		0.47	HIGH	1.3	15.6	0 - 6 in	O-P 18.8	422 3431 656 11	8	0.42 11.8 5.0 0.86			23.8	0 5 72 23 0
84337						3.5	6 - 24 in								
84338						9.3	24 - 42 in								

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Page 4 of 8

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### Results For: VLCC

**Location:**

[illegible]

**Fertilizer Recommendations In Actual Pounds of Plant Nutrients per Acre**

[illegible]

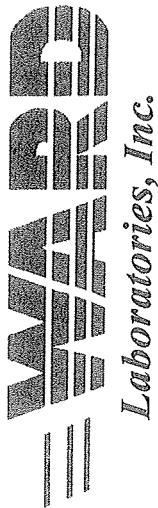
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Results For: VLCC

Location:

Sample ID	Soil pH 1:1	Modified WDRF BpH	Soluble Salts 1:1 mmho/cm	Excess Lime Rating	Organic Matter LOI-%	FIA Nitrate ppm N	Depth Nitrate Lbs N/A	Method Phosphorus ppm P	-Ammonium Acetate- K ppm Ca ppm Mg ppm Na ppm	Ca-P Sulfate ppm S	Zn ppm Fe ppm Mn ppm Cu ppm	Hot Water Boron ppm B	CaNO <sub>3</sub> Chloride ppm Cl	Sum of Cations me/100g	% Base Saturation H K Ca Mg Na
8	84345	7.3	0.46	NONE	1.5	9.2	0-6 in	O-P	425 2814 503 10	9	0.56 25.0 6.3 1.04			19.4	0 6 72 22 0
8	84346					3.7	6-24 in								
8	84347					5.0	24-42 in								
10	84348	7.6	0.39	NONE	1.5	9.7	0-6 in	O-P	477 2096 551 14	7	0.45 23.3 8.0 0.81			16.4	0 7 64 28 0
10	84349					2.6	6-24 in								
10	84350					6.5	24-42 in								

Fertilizer Recommendations In Actual Pounds of Plant Nutrients per Acre

Crop	Yield Goal	Nitrogen N	Phosphorus P <sub>2</sub> O <sub>5</sub>	Potassium K <sub>2</sub> O	Sulfur S	Zinc Zn	Magnesium Mg	Iron Fe	Manganese Mn	Copper Cu	Boron B	Chloride Cl	Lime, ECC Tons/Acre
Sample ID : 8	35	20	0	0	0	0	0	0	0	0.0			
(Ward) Wheat BU/A													

Past Crop : All Other Crops

N Credit : 0

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Page 6 of 8

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Results For: VLCC

Location:

Sample ID	Soil pH 1:1	Modified WDRF BpH	Soluble Salts 1:1 mmho/cm	Excess Lime Rating	Organic Matter LOI-%	FIA Nitrate ppm N	Depth Nitrate Lbs N/A	Method Phosphorus ppm P	-Ammonium Acetate-				Ca-P Sulfate ppm S	-----DTPA-----				Hot Water Boron ppm B	CaNO <sub>3</sub> Chloride ppm Cl	Sum of Cations me/100g	% Base Saturation				
									K ppm	Ca ppm	Mg ppm	Na ppm		Zn ppm	Fe ppm	Mn ppm	Cu ppm				H	K	Ca	Mg	Na
1W 84351	7.9		0.42	HIGH	1.0	20.3	0 - 6 in	O-P	304	4458	440	10	6	0.37	10.6	2.7	0.78			26.8	0	3	83	14	0
1W 84352						5.6	6 - 24 in																		
1W 84353						4.5	24 - 42 in																		
2 84354	7.8		0.40	HIGH	1.0	6.6	0 - 6 in	O-P																	
2 84355						2.2	6 - 24 in		389	4645	735	17	10	0.69	12.6	3.2	0.86			30.4	0	3	76	20	0
2 84356						1.3	24 - 42 in																		
							7																		

Fertilizer Recommendations In Actual Pounds of Plant Nutrients per Acre

Crop	Yield Goal	Nitrogen N	Phosphorus P <sub>2</sub> O <sub>5</sub>	Potassium K <sub>2</sub> O	Sulfur S	Zinc Zn	Magnesium Mg	Iron Fe	Manganese Mn	Copper Cu	Boron B	Chloride Cl	Lime, ECC Tons/Acre
Sample ID : 1W													
(Ward) Wheat BU/A	50	30	0	0	8	2	0	0	3	0.0			
Sub-Soil ID(s)   Depth(s) : 1W   6 - 24 in													
Sub-Soil ID(s)   Depth(s) : 2   24 - 42 in													
(Ward) Corn, BU	50	30	0	0	0	5	0	0	2	0.0			
Sub-Soil ID(s)   Depth(s) : 1W   24 - 42 in													
Sub-Soil ID(s)   Depth(s) : All Other Crops													
N Credit : 0													
Past Crop : All Other Crops													
N Credit : 0													

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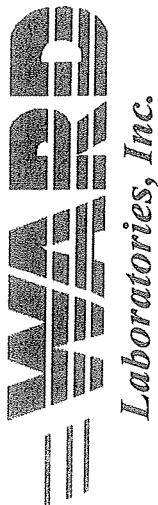
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Page 7 of 8

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Results For: VLCC

Location:

Sample ID	Soil pH 1:1	Modified WDRF BpH	Soluble Salts 1:1 mmho/cm	Excess Lime Rating	Organic Matter LOI%	FIA Nitrate ppm N	Depth Nitrate Lbs N/A	Method Phosphorus ppm P	-Ammonium Acetate- K ppm Ca ppm Mg ppm Na ppm	Ca-P Sulfate ppm S	Zn ppm Fe ppm Mn ppm Cu ppm	Hot Water Boron ppm B	CaNO <sub>3</sub> Chloride ppm Cl	Sum of Cations me/100g	% Base Saturation H K Ca Mg Na
3	84357	7.4	0.33	HIGH	1.6	10.8	0 - 6 in	O-P	332 4083 404 13	7	0.42 15.6 4.4 0.90			24.7	0 3 83 14 0
3	84358					4.3	6 - 24 in								
3	84359					2.3	24 - 42 in								
4	84360	7.6	0.44	LOW	1.5	9.7	0 - 6 in	O-P	474 2649 644 16	8	0.77 30.7 6.9 0.82			19.9	0 6 67 27 0
4	84361					3.1	6 - 24 in								
4	84362					4.3	24 - 42 in								

Fertilizer Recommendations In Actual Pounds of Plant Nutrients per Acre

Crop	Yield Goal	Nitrogen N	Phosphorus P <sub>2</sub> O <sub>5</sub>	Potassium K <sub>2</sub> O	Sulfur S	Zinc Zn	Magnesium Mg	Iron Fe	Manganese Mn	Copper Cu	Boron B	Chloride Cl	Lime, ECC Tons/Acre
Sample ID : 3	Sub-Soil ID(s)   Depth(s) : 3   6 - 24 in	30	0	0	0	2	0	0	0	0.0			N Credit : 0
(Ward) Wheat BU/A	35												
Sample ID : 4	Sub-Soil ID(s)   Depth(s) : 4   6 - 24 in	0	0	0	0	0	0	0	0	0.0			N Credit : 0
(Ward) Sunflower lbs/A	1,000												

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Page 8 of 8

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